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# NOTICE OF ALLOWANCE AND FEE(S) DUE

44987

7590

08/07/2008

HARRITY SNYDER, LLP 11350 Random Hills Road SUITE 600 FAIRFAX, VA 22030 EXAMINER
HOANG, HIEU T
ART UNIT PAPER NUMBER

2152

DATE MAILED: 08/07/2008

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/766,962	01/30/2004	Wladimir de Lara Araujo Filho	0023-0188	2502

TITLE OF INVENTION: NETWORK SINGLE ENTRY POINT FOR SUBSCRIBER MANAGEMENT

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	\$1440	\$0	\$0	\$1440	11/07/2008

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

#### HOW TO REPLY TO THIS NOTICE:

I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.

B. If the status above is to be removed, check box 5b on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above, or

If the SMALL ENTITY is shown as NO:

A. Pay TOTAL FEE(S) DUE shown above, or

B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check box 5a on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and 1/2 the ISSUE FEE shown above.

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III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

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appropriate. All further	correspondence includir ed below or directed oth	ng the Patent, advance or	rders and notification of n	naintenance fees w	ill be	mailed to the current	nould be completed where correspondence address as arate "FEE ADDRESS" for
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FAIRFAX, VA	22030						(Depositor's name)
							(Signature)
							(Date)
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nonprovisional	NO	\$1440	\$0	\$0		\$1440	11/07/2008
EXAM	IINER	ART UNIT	CLASS-SUBCLASS				
HOANG	, HIEU T	2152	709-223000				
1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).  ☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.  ☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. Use of a Customer Number is required.			(1) the names of up to or agents OR, alternativ (2) the name of a single registered attorney or a	of a single firm (having as a member a rney or agent) and the names of up to atent attorneys or agents. If no name is			
PLEASE NOTE: Un	less an assignee is ident h in 37 CFR 3.11. Comp	ified below, no assignee	THE PATENT (print or typ data will appear on the pa T a substitute for filing an (B) RESIDENCE: (CITY	ntent. If an assignassignment.			ocument has been filed for
Please check the appropr	riate assignee category or	categories (will not be pr	rinted on the patent): $\Box$	Individual 🖵 Co	orporat	ion or other private gro	oup entity Government
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5. Change in Entity Sta	itus (from status indicate as SMALL ENTITY statu		b. Applicant is no long	ger claiming SMAI	LLEN	TITY status. See 37 Cl	FR 1.27(g)(2).
NOTE: The Issue Fee an	d Publication Fee (if req		d from anyone other than th				ne assignee or other party in
Authorized Signature				Date			
Typed or printed name				Registration No.			
This collection of inform an application. Confiden submitting the complete this form and/or suggest Box 1450, Alexandria, V Alexandria, Virginia 223	nation is required by 37 C tiality is governed by 35 d application form to the ions for reducing this bu /irginia 22313-1450. DC 813-1450.	CFR 1.311. The informatic U.S.C. 122 and 37 CFR USPTO. Time will vary rden, should be sent to the ONOT SEND FEES OR	on is required to obtain or r 1.14. This collection is est depending upon the indiv e Chief Information Office COMPLETED FORMS TO	etain a benefit by t imated to take 12 i idual case. Any co r, U.S. Patent and D THIS ADDRESS	he pub minute mmen Trader S. SEN	lic which is to file (and s to complete, including ts on the amount of tin mark Office, U.S. Dep. D TO: Commissioner	d by the USPTO to process) ag gathering, preparing, and me you require to complete artment of Commerce, P.O. for Patents, P.O. Box 1450,

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10/766,962 01/30/2004		Wladimir de Lara Araujo Filho	0023-0188 2502	
44987 75	90 08/07/2008		EXAM	INER
HARRITY SNYI	DER, LLP	HOANG,	HIEU T	
11350 Random Hil	lls Road	ART UNIT	PAPER NUMBER	
SUITE 600 FAIRFAX, VA 220	030		2152 DATE MAILED: 08/07/200	8

# Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)

(application filed on or after May 29, 2000)

The Patent Term Adjustment to date is 878 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 878 day(s).

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (http://pair.uspto.gov).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

	Application No.	Applicant(s)
	10/766,962	FILHO ET AL.
Notice of Allowability	Examiner	Art Unit
	HIEU T. HOANG	2152
The MAILING DATE of this communication appeal claims being allowable, PROSECUTION ON THE MERITS IS herewith (or previously mailed), a Notice of Allowance (PTOL-85)	ears on the cover sheet with the co	orrespondence address plication. If not included
NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIOF the Office or upon petition by the applicant. See 37 CFR 1.313	IGHTS. This application is subject to	
1. $\boxtimes$ This communication is responsive to <u>communication filed of</u>	on 6/9/2008.	
2. X The allowed claim(s) is/are <u>1-4, 6, 8-16, 19-20, 22-23, 25,</u>	<u>27-28, 30-32</u> .	
3. Acknowledgment is made of a claim for foreign priority ur	nder 35 U.S.C. § 119(a)-(d) or (f).	
a) ☐ All b) ☐ Some* c) ☐ None of the:		
<ol> <li>Certified copies of the priority documents have</li> </ol>	e been received.	
2. Certified copies of the priority documents have	· · · —	
3. Copies of the certified copies of the priority do	cuments have been received in this	national stage application from the
International Bureau (PCT Rule 17.2(a)).		
* Certified copies not received:		
Applicant has THREE MONTHS FROM THE "MAILING DATE" noted below. Failure to timely comply will result in ABANDONN THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.		complying with the requirements
4. A SUBSTITUTE OATH OR DECLARATION must be subm INFORMAL PATENT APPLICATION (PTO-152) which give		
5. CORRECTED DRAWINGS ( as "replacement sheets") mus	et be submitted.	
(a) $\square$ including changes required by the Notice of Draftspers	on's Patent Drawing Review ( PTO-	948) attached
1) 🔲 hereto or 2) 🔲 to Paper No./Mail Date		
(b) ☐ including changes required by the attached Examiner's Paper No./Mail Date	s Amendment / Comment or in the C	Office action of
Identifying indicia such as the application number (see 37 CFR 1 each sheet. Replacement sheet(s) should be labeled as such in t		
<ol> <li>DEPOSIT OF and/or INFORMATION about the depo attached Examiner's comment regarding REQUIREMENT</li> </ol>		
Attachment(s) 1. ☑ Notice of References Cited (PTO-892)	5. ☐ Notice of Informal F	Patent Application
<ol> <li>Notice of Draftperson's Patent Drawing Review (PTO-948)</li> </ol>	6. ☐ Interview Summary	
3. ☐ Information Disclosure Statements (PTO/SB/08),	Paper No./Mail Da 7. ⊠ Examiner's Amendr	te ment/Comment
Paper No./Mail Date  4.  Examiner's Comment Regarding Requirement for Deposit	8. 🛛 Examiner's Stateme	ent of Reasons for Allowance
of Biological Material	9.	

### **DETAILED ACTION**

#### **EXAMINER'S AMENDMENT**

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Viktor Simkovic, followed by applicant's proposed examiner amendment on the 07/16/2008.

The claims have been amended as follows:

(Currently amended) One or more devices in a network comprising:
 <u>at least one storage device for storing computer instructions for implementing:</u>
 agents configured to collect information relating to other devices in the
 network; and

at least one resolver configured to contact the agents to obtain the collected information and configured to identify, based on identification information of a subscriber, a network resource that manages elements associated with the subscriber to implement network services for the subscriber, the <u>at least one</u> resolver performing the identification of identifying the network resource in accordance with a resolution process determined based on the information collected by the agents, the resolution process specifying a mapping from the identification information of the subscriber to the

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network resource, wherein, when identifying the network resource in accordance with the resolution process, the at least one resolver is part of a resolution graph defined by vertices representing network data types used by the at least one resolver and edges representing resolvers that can perform a mapping from a data type represented by a source vertex to another data type represented by a destination vertex, wherein the network data types comprise an Internet Protocol (IP) address, an IP pool, and a

2. (Currently amended) The one or more devices of claim 1, further comprising:

a plurality of host components [[that]] wherein each provide provides a framework for execution of the agents and the at least one resolver.

- 3. (Previously presented) The one or more devices of claim 2, wherein the plurality of host components are distributed in the network.
- 4. (Currently amended) The device of claim 1, wherein the other devices in the network include at least one of service activation engines, <u>routers</u>, Radius servers, [[and]] <u>or</u> Lightweight Directory Access Protocol servers.
  - 5. (Cancelled)

service activation engine identifier (ID).

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6. (Currently amended) The device of claim [[5]] 1, wherein the resolution graph is further defined by constraints that specify prerequisites for traversing the edges.

# 7. (Cancelled)

- 8. (Currently amended) The device of claim 1, wherein the agents are dynamically added in response to the other devices being added to the network.
- 9. (Currently amended) The device of claim 1, wherein the agents include at least one remote agent that executes on [[a]] one of the other devices with which the agents collect information.
- 10. (Currently amended) The device of claim 1, wherein the network resource that manage manages the elements comprises service activation engines.
- 11. (Currently amended) The device of claim 1, wherein the network resource that manage manages the elements [[are]] is implemented within routers.
- 12. (Previously presented) The device of claim 1, wherein the agents push the collected information to the at least one resolver.

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(Currently amended) A method implemented in a network comprising:
 collecting information pertaining to a plurality of different network devices via a set of collection agents;

representing network data types and edges representing the resolvers that can perform a mapping from a data type represented by a source vertex to another data type represented by a source vertex to another data type represented by a destination vertex, one of the plurality of different network devices as a network device that provides services to a subscriber of the network based on information that identifies the subscriber and based on the collected information, wherein the information that identifies the subscriber comprises an Internet Protocol (IP) address and wherein the identified network device comprises a service activation engine (SAE) that manages routing devices; and

specifying a mapping from the information that identifies the subscriber to the identified network device.

- (Original) The method of claim 13, further comprising:
   pushing the collected information to a network information collector (NIC).
- 15. (Original) The method of claim 13, further comprising: transmitting the collected information to a network information collector (NIC) when the collected information is requested by the NIC.

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16. (Currently amended) The method of claim 13, wherein the collection agents are executed remotely at at least one of the plurality of different network devices.

17-18. (Cancelled)

- 19. (Currently amended) The method of claim 13, wherein the network device includes at least one of a Radius server [[and]] or a Lightweight Directory Access Protocol (LDAP) server.
  - 20. (Currently amended) A system comprising:

a gateway, comprising hardware, configured to receive network service requests from or on behalf of subscribers in a network, at least some of the service requests requiring configuration of one or more routers to satisfy the service request;

a network information collector (NIC), coupled to the gateway, configured to identify a service activation engine associated with the one or more routers required to satisfy the at least some of the service request requests, the NIC including:

at least one resolver configured to create a resolution graph and identify
the service activation engine by traversing the resolution graph, wherein the resolution
graph is defined by vertices representing network data types used by the at least one
resolver and edges representing resolvers that can perform a mapping from a data type
represented by a source vertex to another data type represented by a destination

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vertex, wherein the network data types comprise an Internet Protocol (IP) address, an IP pool, and a service activation engine identifier (ID); and

a plurality of agents, coupled to the NIC, configured to collect information relating to a state of a plurality of the one or more routers, the collected information being used to identify the service activation engine.

- 21. (Cancelled)
- 22. (Currently amended) The system of claim [[21]] <u>20</u>, further comprising: a plurality of distributed resolvers.
- 23. (Currently amended) The system of claim [[21]] <u>20</u>, wherein the resolution graph is formed based on the information collected by the plurality of agents.
  - 24. (Cancelled)
- 25. (Currently amended) The system of claim [[24]] <u>20</u>, wherein the resolution graph is further defined by constraints that specify prerequisites for traversing the edges.
  - 26. (Cancelled)

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27. (Currently amended) A method of resolving a resolution request to identify a management resource, the method comprising:

receiving a resolution request that includes an identification of a subscriber;

performing a resolution process that specifies an ordering of functions required to satisfy the resolution request, including determining a mapping from the identification of the subscriber to the management resource, the resolution process comprising consulting a resolution graph, wherein the resolution graph includes:

vertices and edges, wherein the vertices represent network data types
used by resolvers and the edges represent resolvers that perform a mapping from a
data type represented by a source vertex to another data type represented by a
destination vertex, wherein the network data types comprise an Internet Protocol (IP)
address, an IP pool, and a service activation engine identifier (ID);

selecting resolvers designed to perform the functions specified in the resolution process; and

controlling the resolvers to perform the functions specified in the resolution process.

28. (Previously presented) The method of claim 27, wherein the resolvers are distributed across different network elements in a network.

29. (Cancelled)

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30. (Currently amended) The method of claim [[29]] <u>27</u>, wherein selecting resolvers further includes:

associating [[a]] cost value values with the edges of the resolution graph; and selecting edges based on the associated costs cost values.

- 31. (Currently amended) The method of claim 30, wherein edges that are associated with remote resolvers are associated with higher cost values than edges associated with local resolvers.
- 32. (Currently amended) The method of claim [[29]] <u>27</u>, wherein selecting resolvers further includes:

associating constraints with the edges of the resolution graph that specify prerequisites for traversing the edges; and

selecting edges based on the associated constraints.

33-34. (Cancelled)

#### Reasons for Allowance

The following is an examiner's statement of reasons for allowance:

Claims 1-4, 6, 8-16, 19-20, 22-23, 25, 27-28, 30-32 are allowed in response applicant's persuasive arguments in the reply filed on 04/14/2008, followed by the phone interview with Viktor Simkovic and applicant's proposed examiner amendment on the 07/16/2008.

The prior art of record does not teach the claimed invention, as follows.

The prior art does not teach a resolution process that specifies an ordering of functions required to satisfy the resolution request, including determining a mapping from the identification of the subscriber to the management resource, the resolution process comprising consulting a resolution graph, wherein the resolution graph includes: vertices and edges, wherein the vertices represent network data types used by resolvers and the edges represent resolvers that perform a mapping from a data type represented by a source vertex to another data type represented by a destination vertex, wherein the network data types comprise an Internet Protocol (IP) address and a service activation engine identifier (ID);

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### Conclusion

The prior arts made of record and not relied upon is considered pertinent to applicant's disclosure are listed in form PTO 392.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hieu T. Hoang whose telephone number is 571-270-

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1253. The examiner can normally be reached on Monday-Thursday, 8 a.m.-5 p.m.,

EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Bunjob Jaroenchonwanit can be reached on 571-272-3913. The fax phone

number for the organization where this application or proceeding is assigned is 571-

273-8300.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

USPTO Customer Service Representative or access to the automated information

system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

HH

/Jeffrey Pwu/

Supervisory Patent Examiner, Art Unit 2146

Art Unit: 2146